Claims

1. Endoprosthesis in the form of an elongated hollow structure that can be implanted percutaneously with a catheter in a blood vessel or other cavity of the body and once correctly positioned will expand from an initial state with a narrow lumen into a state with a lumen that is as wide as its placement will allow, characterized by a lining (12 & 13, 21, 22, 25, & 26, or 42 & 43) of a wrapping material that deforms plastically without fissuring as it expands from the state with the narrow lumen to the state with the wide lumen and that is impregnated with at least one medication that will gradually and preferably at a uniform rate be released to the patient once the prosthesis (10, 20, 30, or 40) is in place.

2. Endoprosthesis in the form of an elongated hollow structure or stent that can be implanted percutaneously with a catheter in a blood vessel or other cavity of the body and once correctly positioned will expand from an initial state with a narrow lumen into a state with a lumen that is as wide as its placement will allow, characterized by a wrinkled lining (12 & 13, 21, 22, 25, & 26, or 42 & 43) around the as yet unexpanded stent that smoothes out as the stent expands from the state with the narrow lumen to the state with the wide lumen and that is impregnated with at least one medication that will gradually and preferably at a uniform rate be released to the patient once the prosthesis (10, 20,

30, or 40) is in place.

3. Endoprosthesis as in Claim 1 or 2, characterized in that the lining (12 & 13, 22 & 23, or 42 & 43) is against either the outer surface or the inner surface of the prosthesis (10, 20, or 40) of both.

4. Endoprosthesis as in Claim 1 or 2, characterized in that the lining (12 & 13, 22 & 23, or 42 & 43) rests against all supporting areas of the prosthesis (10, 20, or 40).

5. Endoprosthesis as in Claim 1 or 3, characterized in that the lining (12 & 13 or 22 & 23) impregnated with at least one medication is applied by introducing the hollow structure or stent that supports the prosthesis (10 or 20) into a mold along with liquid wrapping material that subsequently solidifies elastic.

6. Endoprosthesis as in Claim 5, characterized in that the lining (12 & 13 or 22 & 23) is applied to the hollow structure or stent that supports the prosthesis (10 or 20) once it has expanded to approximately half its final size.

7. Endoprosthesis as in one of Claims 1 through 4, characterized in that the lining (12 & 13, 22 & 23, or 42 & 43) is a flexible tubular membrane wrapped around the prosthesis (10 or 20) and secured.

8. Endoprosthesis as in Claim 7, characterized in that the flexible tubular membrane adheres to the inner surface and/or the outer surface of the prosthesis (10, 20, or 40) and folds back around its ends.

9. Endoprosthesis as in one of Claims 1 through 8, characterized in that medications in the lining (12 & 13, 22 & 23, or 42 & 43) are dissolved in the wrapping material or included in the form of beads.

10. Endoprosthesis as in Claim 7 or 8, characterized by openings in the inner and/or outer component of the lining (12 & 13, 22 & 23, or 42 & 43) that expand as the prosthesis expands to the state with the wider lumen to the extent that medications are released once the lining has expanded to the utmost.

11. Endoprosthesis as in Claim 10, characterized in that there are more or less openings in the wall of the lining (12 & 13, 22 & 23, or 42 & 43) next to the lumen than there are in the wall next to the inner surface of the vessel.

12. Endoprosthesis as in one of Claims 1 through 11, characterized in that the wrapping material that the lining (12 & 13, 22 & 23, or 42 & 43) is made of is biodegradable.

13. Endoprosthesis as in one of Claims 1 through 12,

characterized in that the lining (12 & 13, 22 & 23, or 42 & 43) is made of polymers or compounds thereof and especially of poly-D,L-lactide or poly-D,L-lactide co-trimethylene carbonate or of albumin cross-linked with glutalaldehyde, which is removed once the albumin is cross-linked.

14. Endoprosthesis as in one of Claims 1 through 11, characterized in that the lining (12 & 13, 22 & 23, or 42 & 43) is of polyacrylic or compounds thereof.

15. Endoprosthesis as in one of Claims 1 through 14, characterized in that once the prosthesis is in place the lining (12 & 13, 22 & 23, or 42 & 43) is permeable enough for any metabolites that occur to enter the blood circulation through the wall of the vessel and for oxygen or nutrients for example to diffuse out of the blood through the lining to the wall of the vessel.

16. Endoprosthesis as in Claim 15, characterized in that the wall (11, 21, or 41) with the lining (12 & 13, 22 & 23, or 42 & 43) of wrapping material is either perforated at many points or is a knitted, crocheted, or otherwise produced mesh.

17. Endoprosthesis as in one of Claims 1 through 16, characterized by pores in the lining (12 & 13, 22 & 23, or 42 & 43) for the substances to diffuse through.

18. Endoprosthesis as in Claim 17, characterized in that the diameter of the pores in the lining (12 & 13, 22 & 23, or 42 & 43) is no longer than 0.5 µm.

19. Endoprosthesis as in one of Claims 1 through 18, characterized in that the lining (12 & 13, 22 & 23, 25, & 26, or 42 & 43) is of several layers, each impregnated with different medications.

20. Endoprosthesis as in Claim 19, characterized in that the layers of the lining (12 & 13, 22 & 23, 25, & 26, or 42 & 43) are made of materials that biodegrade at different rates.

21. Endoprosthesis as in Claim 20, characterized in that the inner layer of the lining (12 & 13, 22 & 23, 25, & 26, or 42 & 43) biodegrades more rapidly than the outer layer.

22. Endoprosthesis as in one of Claims 19 through 21, characterized in that the inner layer of the lining (12 & 13, 22 & 23, or 42 & 43) is impregnated with antithrombotics and the outer with antiproliferatives and/or other medicational substances.

23. Endoprosthesis as in Claim 22, characterized in that the outer layer of the lining, the layer impregnated with antiproliferatives and/or other medicational substances, consists of a short cuff (25 & 26) at each end.

24. Endoprosthesis as in Claim 23, characterized in that the cuffs (25 & 26) at each end are provided with pores.

25. Endoprosthesis as in one of Claims 19 through 24, characterized in that the outer layer of the lining (12 & 13, 22 & 23, 25 & 26, or 42 & 43) is impregnated with cytostatics to keep tumorous stenoses open or to act as an antiproliferative against hyperplasia of the intima and the inner layer with rheologically beneficial substances.

26. Endoprosthesis as in one of Claims 1 through 25, characterized by a lateral aperture (31 & 31') that expands extensively in accordance with the expanding lumen.

27. Endoprosthesis as in one of Claims 7 through 11, characterized by at least one flexible medicating tube (47) extending outward along a lining (42 & 43) in the form of a membranous tube.

28. Endoprosthesis as in Claim 27, characterized in that the medicating tube (47) is attached to and can be detached from the lining (42 & 43).

29. Endoprosthesis as in Claim 27 or 28, characterized in that medicating tubes (47) are uniformly distributed around the lining (42 & 43).

30. Endoprosthesis as in Claim 29, characterized in that a group of openings in the lining is associated with each medicating tube (47).

31. Endoprosthesis as in one of Claims 7 through 9, characterized in that the lining (42 & 43) in the form of a membranous tube has an outward-extending medicating tube (47) that accommodates radioactive liquids.

32. Endoprosthesis as in one of Claims 1 through 31, characterized in that the lumen of a hollow structure that supports the prosthesis (19, 20, or 40) and has netting or meshes narrows to such an extent when axial tension is applied to the prosthesis that it can be intercepted in a catheter and removed with the catheter from the vessel.